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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/728,796

12/08/2003

Kia Silverbrook

ZE005US

8915

24011

7590

12/23/2004

SILVERBROOK RESEARCH PTY LTD  
393 DARLING STREET  
BALMAIN, 2041  
AUSTRALIA

EXAMINER

DO, AN H

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 12/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/728,796	<b>Applicant(s)</b> SILVERBROOK ET AL.	
	<b>Examiner</b> An H. Do	<b>Art Unit</b> 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2004.  
2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 8-13 is/are allowed.  
6) ☒ Claim(s) 1 and 7 is/are rejected.  
7) ☒ Claim(s) 2-6 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

The Amendment filed on 17 October 2004 has been acknowledged.

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Khuri-Yakub et al (US 5,828,394).

Khuri-Yakub et al disclose the following claimed limitations:

An inkjet printhead chip (Figures 1-3, a fluid drop ejector) that comprises a substrate (11, 12) that defines a plurality of ink supply channels (16, column 2, lines 51-53); a drive circuitry layer (conductive contact films 18, 19) that is positioned on the substrate (11, 12); and a plurality of nozzle arrangements (Figures 1-3) that are positioned on the substrate (11, 12), each nozzle arrangement including a nozzle chamber (reservoir 14) defined by the substrate (11); a roof structure (elements 13 and 17-19) positioned over the nozzle chamber (reservoir 14), the roof structure (elements 13 and 17-19) defining an ink ejection port (Figure 2, the centered orifice); and at least one actuator (piezoelectric annular disk 17) that is positioned in the roof structure, the at least one actuator (piezoelectric annular disk 17) being arranged so as to be

displaceable towards the substrate (Figure 7C) upon receipt of an electrical current (Figures 4A-6C) from the drive circuitry layer (conductive contact films 18, 19) so as to reduce a volume of the nozzle chamber (14) and be displaceable back (Figure 7D) to its original position upon cessation of the electrical current so that ink is ejected from the ink ejection port.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Khuri-Yakub et al (US 5,828,394) in view of Asaba (US 5,850,242).

Khuri-Yakub et al disclose the claimed invention except for the limitation of in which the drive circuitry layer is a CMOS layer.

Asaba teaches in Figure 17 the drive circuitry layer is a CMOS layer (column 1, lines 60-66), for the purpose of supplying a signal for drivingly controlling one transistor at a desired timing (column 4, lines 36-38).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the actuators actuated by means of a thermal actuator device, as taught by Asaba into Khuri-Yakub et al, for the purpose of supplying a signal for drivingly controlling one transistor at a desired timing (column 4, lines 36-38).

***Allowable Subject Matter***

5. Claims 8-13 are allowed.

The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of claims 8-13 is the inclusion of the limitation of an inkjet printhead chip that includes a plurality of nozzle arrangements, each nozzle arrangement having a plurality of actuators positioned in the roof structure about the ink ejection port. It is this limitation found in the claims, as it is claimed in the combination of, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

6. Claims 2-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the allowance of claims 2-6 is the inclusion of the limitation of an inkjet printhead chip that includes a plurality of nozzle arrangements, each nozzle arrangement having a number of actuators positioned in each roof structure about the ink ejection port. It is this limitation found in the claims, as it is

claimed in the combination of, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

***Response to Arguments***

7. Applicant's arguments filed 17 October 2004 have been fully considered but they are not persuasive. Applicants argues that the annular piezoelectric disc actuator (17) of Khuri-Yakub works quite different compared with the claimed actuator in such a way that it functions to eject ink by oscillating at resonance. This argument is not found persuasive since applicant didn't claim the essential detail of the claimed actuator that what kind of material the actuator is made of and what kind of actuator it is (i.e., piezoelectric, thermal). Nowhere in claim 1 is found this essential detail of the claimed actuator. Furthermore, applicants argued that the claimed actuator is only activated to displace towards the chamber and then upward once it is deactivated to return to its quiescent position. Again, examiner found this argument not persuasive for the reason that the Figures 7C and 7D of Khuri-Yakub show the actuator (17) bends downward (Figure 7C) towards the ink chamber and then upward (Figure 7D) to its quiescent position. Finally, applicants argued that Asaba did not teach the drive circuitry layer is a CMOS layer, which lacks in Khuri-Yakub. However, examiner found the combination of Khuri-Yakub and Asaba taught in Figure 17 the drive circuitry layer is a CMOS layer (column 1, lines 60-66) as noted in above rejection.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

***Contact Information***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to An H. Do whose telephone number is 571-272-2143. The examiner can normally be reached on Monday-Friday (Flexible).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



AD  
December 16, 2004

  
**Stephen D. Meler**  
Primary Examiner